

REPORT ON THE FISHES COLLECTED BY MR. OWEN  
BRYANT ON A TRIP TO LABRADOR IN THE SUMMER OF  
1908.

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During the summer of 1908 Mr. Owen Bryant made very extensive collections of marine animals along the coasts of Labrador and Newfoundland. Most of the specimens brought back were of invertebrate types, but included among them were a few fishes. These were turned over to Mr. Austin H. Clark for study and report; he was unable, however, in connection with his other work, to devote the necessary time to them, and he therefore requested me to examine them and to draw up an annotated list of the species represented.

The collection consists of only fourteen species, of which seven are young and larval forms taken in a tow net and dredge. Satisfactory identification of some of these young individuals is difficult, but, although the identifications of these are not absolutely positive, it is hoped that they are correct.

Of the fourteen species taken on the trip twelve are from Labrador, one from Newfoundland, and one from St. Pierre. Two of the species collected have not previously been definitely recorded from Labrador, which shows the desirability of collections, however small, from that region.

1. (?) *SALVELINUS STAGNALIS* (Fabricius).

Through the kindness of Mr. J. T. Nichols the writer was privileged to examine six "sea trout" sent to him by Mr. Bryant. The fish had been split and salted, but were otherwise in fairly good condition and showed the colors very well. Regarding these fish Mr. Bryant wrote in a letter dated December 26, 1908:

Trout caught at Komaktorvik Bay, Labrador, in salt water, September, 1908, called "sea trout." There were just a few in places; you could almost walk across the rivers on them without wetting your feet, or, to be more exact, they were only about one or two feet apart all over the shoal places. Ford used to take a net and get enough out of a river to last him through the winter for dog food.

These specimens made it very evident that there exists, in Labrador at least, a "sea trout" very different from the sea-run form of the brook trout (*Salvelinus fontinalis*).

While they differ in some minor details, they are specifically identical with specimens in the U. S. National Museum from Greenland, and also with specimens collected by Mr. L. M. Turner in the Ungava Bay region.

Storer's brief description of *Salmo immaculatus* is explicit enough to indicate that it is this same species and not the sea-run brook trout (*S. fontinalis*). For the purpose of comparison the Boston Society of Natural History very kindly loaned the writer specimens of Salmonidæ collected in Greenland by the Williams College Expedition in 1860, and in Labrador by Prof. A. S. Packard in 1864. Unfortunately, the type of *Salmo immaculatus* could not be found; but the specimens received supported the identification. Regarding some of them Packard wrote:<sup>a</sup>

*Salmo immaculatus* H. R. Storer. Three specimens from near Hopedale were collected July 29th. These specimens are unquestionably referable to the *S. immaculatus* of Storer and are distinct from the *S. trutta* of Europe, with which species Perley and others have confounded them. They differ from *S. trutta* by having larger scales and being without spots, as their name indicates (Putnam).

Putnam was undoubtedly familiar with the type of *S. immaculatus*.

In the Packard collection were also two specimens concerning which he wrote:<sup>a</sup>

*Salmo* sp.? Two specimens from the Island of Ponds, near Domino Harbor, collected in July. This species, which, from its rather imperfect condition, I have not been able to recognize, appears to be closely allied to the *S. trutta* of Europe, being spotted as in that species, but of somewhat different shape, especially about the head. There are also specimens from Greenland belonging to this species in the collection of this society, collected by the Williams College Expedition to Greenland and Labrador in 1860.

These specimens were undoubtedly correctly identified with the Greenland specimens with which the present writer compared them, but Putnam was mistaken regarding the spots. *Salmo trutta* has dark spots, and the spots of this form are light, pink or red. However, no spots are visible at this time on the specimens under discussion. It is not stated whether these specimens were taken in the sea, brackish or fresh water, but one of them to a greater extent than the other resembles a trout of the *S. alpinus* group from fresh water. There are certain differences in measurements between these and the Greenland specimens mentioned, but apparently they can mostly be accounted for by the differences in the sizes of the individuals.

In the description of *Salmo immaculatus* Storer gave the diagnostic points of difference between that species and *S. fontinalis*, and, although they have been ignored, there are good and strong specific differences. These are: "Preopercle larger than in *S. fontinalis*," "scales larger than those of *S. fontinalis*," "caudal deeply forked."

<sup>a</sup>The Labrador Coast, p. 400.

Suckley<sup>a</sup> severely criticised Storer for describing what he (Suckley) was strongly inclined to consider a young fish:

The naming of Salmonidæ, and the description of new species, based upon the characters of young, partially developed fish, can not be too strongly reprobated. There is already too much confusion in the synonymy of the various kinds; and if the practice of describing and naming new species from the characters of unidentified, immature individuals is not stopped the study of the relations of the species will become so complicated that useful classification will be next to impossible and the principal object and usefulness of scientific arrangement, such as simplifies the study of natural history in other branches, will be greatly impaired.

The length of Storer's single specimen was 13½ inches. It was taken at Red Bay, Labrador.

Yet Suckley<sup>b</sup> himself described *Salmo hudsonicus* from a specimen 16¼ inches long, from Hudson Bay, the diagnostic differences from *S. fontinalis* being "a smaller head, larger spots, and larger, more adherent scales." This, too, has been consigned by later ichthyologists to the synonymy of *S. fontinalis*.

There were six specimens sent by Mr. Bryant ranging in total length from 15¼ to 20 inches, which, aside from the different coloration, differ from *S. fontinalis* in a number of characters, particularly the deeply forked tail of the fish of these sizes, the somewhat larger scales (about 200 in lengthwise series), and the more advanced position of the eye, the distance from the eye to the edge of the gill cover being comparatively considerably greater. The vertebræ are 65 in number.

The color of the different individuals varied somewhat, but all were essentially alike. A fish 15¼ inches long showed the following coloration: Back steel gray with metallic reflections; head similar on top, silvery on side; lower jaw and branchiostegals white; sides silvery; belly white; numerous small pink spots on back and sides above the lateral line, each occupying from four to six scales; on the silvery portion of the side and below lateral line, and posteriorly a little above lateral line, large pink spots, half diameter of eye; dorsal adipose and caudal plain steel gray; pectoral, ventral, and anal white; pectoral dusky and yellowish behind, ventral pinkish; no spots on head or caudal.

The gills had been removed from these fish, but the number in the same species above mentioned from Labrador and Greenland ranged in number from 22 to 26, that is: 8+14 to 10+16. The specimen having 8+14, however, had 9+15 or 24 on the right side, and the specimen having 10+16 or 26 on the right side had 9+15 or 25 on the left side. The specimen from Hopedale identified by Putnam as *Salmo immaculatus* had 10+15 or 25 on each side.

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<sup>a</sup> Suckley, On the North American Species of Salmon and Trout, Report U. S. Fish Comm. for 1872 and 1873 (1874), p. 113.

<sup>b</sup> Suckley, Notices of Certain New Species of North American Salmonidæ. "N. Y., June, 1861," and Report U. S. Fish Comm. for 1872 and 1873 (1874), p. 119.

*Salvelinus fontinalis* from the same region had 18 as the maximum number of gill-rakers, usually 7 + 11.

The accompanying Plate (30) was reproduced from a photograph taken by Mr. Thomas E. B. Pope, of the Bureau of Fisheries, from one of the Bryant specimens, 15½ inches long, above described.

It would not be surprising to find that the range of this form extended farther westward along the Quebec shores and southward along the Newfoundland coast. If such be the case it would account for the decidedly antagonistic views regarding the identity of the "sea trout" of Canada, which have for so many years been a matter of serious discussion in sportsmen's journals and elsewhere, both by anglers and by ichthyologists. Many, especially anglers, maintain that the Canadian "sea trout" is a distinct species. Others claim that it is but a "sea-run" form of the common brook trout (*Salvelinus fontinalis*). The discussion has appeared at irregular periods in *Forest and Stream*, but never has been definitely settled. However, about 1905 the arguments were brought to a close apparently in favor of the brook-trout advocates. During the later discussions the fact that it had been pointed out that there were at least two species of "sea trout" was lost sight of. In *Forest and Stream* <sup>a</sup> an article by Tarleton H. Bean on Salmon and Trout in North America, specifies the "sea trout" as *Salvelinus stagnalis*, and under the heading "Brook Trout" states that it "has a reputation for sea going." Again in the next volume <sup>b</sup> "T. H. B." [Tarleton H. Bean] writes:

It is well known that the American brook trout (*Salvelinus fontinalis*) leaves certain fresh-water streams for a portion of the year and goes to sea. This is true in regions where it is not cut off from access to the ocean by intervening areas of lowland traversed by streams of high temperature. The sea-going habit is more pronounced as we approach the northern limit of trout distribution. We think there is still some doubt as to the proper application of the name "sea trout" in Canada. The *fontinalis* certainly may be included under this title, but we believe that another and larger species, which is better entitled to the name "sea trout," occurs in Canadian waters. We refer to the great sea trout of Labrador, *Salvelinus stagnalis*. This splendid fish grows very large, much larger than *fontinalis*, attaining the proportions and shape of the Atlantic salmon. It is well known to anglers and fishermen, and the fishing for it is prosecuted extensively in the sea. This species, according to Mr. L. M. Turner, spawns only in large streams and does not penetrate far inland.

On the Pacific slope the Dolly Varden becomes a sea trout, especially in Alaska, where it is known commercially under the name of salmon trout. This handsome species is found in the bays during a large portion of the year. Some individuals exceed two feet in length. When taken from the salt water they are brilliant silvery, with scarcely a trace of red spots, but exposure to the sun or immersion in fresh water will soon cause the spots to appear.

We have thus far spoken only of trout belonging to the genus *Salvelinus*, and we have made no mention of some species which occur only in the high northern regions

<sup>a</sup> Vol. 32, April 4, 1889, Supplement, pp. 219-222.

<sup>b</sup> Vol. 33, November 7, 1889, p. 312.



of our country. It may not be amiss to remark, in addition, that several species of *Salmo*, or large river trout, also have the sea-going habit well developed. These include the brown trout, the rainbow, steelhead, and redthroat.

Subsequent disputants, however, ignored or were ignorant of this plausible suggestion and continued to enunciate their views and denounce their opponents in the arguments. But that two different fish were under discussion can not be doubted.

To the present writer it seems doubtful whether the name *Salvelinus stagnalis* can properly be given to this species. It is a name bestowed by Fabricius<sup>a</sup> upon a small trout which inhabited the remoter mountain waters of Greenland from which, it was said, it never descended to the sea (“*Habitat in aquis montanis remotioribus, inde nunquam descendens.*”).

If other small salmonids of the fresh waters of Greenland can be regarded as distinct species or subspecies (*S. arcturus* and *S. naresi*) there is nothing to indicate that *S. stagnalis* is not one of these.

Our fish is undoubtedly the same form that was described by Fabricius<sup>b</sup> under the name of *Salmo carpio*, by mistake.

Dressel,<sup>c</sup> regarding a fish which he identified as *Salvelinus stagnalis*, says:

Although it is doubtful whether the species is the *Salmo stagnalis* of Fabricius, yet it agrees partly with the description and very closely with Doctor Richardson's description of *Salmo alipes*, which is probably identical with *S. stagnalis*. It differs from *S. carpio* Fabricius in being more elongate and in the absence of the black quadrate spots mentioned in his description.

The “more elongate form” counts for nothing, since individuals vary in this respect, and Dressel attaches too much importance to the absence of “black quadrate spots” mentioned by Fabricius. Regarding this character, Fabricius says: “Scales with dusky margins, and causing as it were quadrate spots, which, however, are not easily perceived.” (*Color dorsi obscure carulescit, tinctura subviridi, squamarum marginibus tamen nigrantibus, et quasi maculas quadratas causantibus, quæ tamen non facile observantur*).

It is very likely a sea-run form of the fish that Fabricius designated as *Salmo alpinus*, which may be identical with one or more of Richardson's species, perhaps *Salmo alipes*, as suggested by Dressel and others.

Storer's name *Salmo immaculatus* is preoccupied and could not be used for it if it should, by chance, prove to be without a name. But this contingency is doubtful.

<sup>a</sup> *Fauna græntlandicus*, 1780, p. 175.

<sup>b</sup> *Idem*, p. 170.

<sup>c</sup> Notes on some Greenland Fishes, Proc. U. S. Nat. Mus., vol. 7, 1884, p. 255

## 2. MALLOTUS VILLOSUS (O. F. Müller).

## CAPELIN.

Two males,  $6\frac{3}{4}$  and  $7\frac{1}{4}$  inches long from Greely Harbor, August 8.

One larva or fry 13 mm. in length was taken in Greely Harbor and Egg Harbor towings, August 8 to 10.

## 3. GASTEROSTEUS CUVIERI Girard.

## STICKLEBACK.

Eight young individuals 12 to 18 mm. in total length from Indian Harbor, August 12. Absolutely no lateral dermal plates visible under hand lens excepting in the largest three individuals which show traces of from three to five on each side. No information is given regarding whether these fish were taken in fresh, brackish, or salt water. The feeble armature suggests that the habitat was fresh water.

## 4. ICELUS BICORNIS (Reinhardt).

One specimen 29 mm. long from Komaktorvic Bay, north of Nakkvak, in 5 fathoms, rocky bottom, August 28.

This specimen seems to have a simple upper preopercular spine.

Two specimens from 17 to 19 mm. in length respectively; the definite locality not given; upper preopercular spine simple. The non-bifurcate upper preopercular spine may be due to the youthfulness of the individuals.

## 5. MYOXOCEPHALUS SCORPIOIDES (Fabricius).

## ARCTIC SCULPIN.

Six specimens of young 21 to 24 mm. long from Fog Island, Seldom-come-by Bay, Newfoundland, July 28. These specimens, like all very young of the genus, have four preopercular spines instead of three as in the adults; conspicuous nasal, supra-orbital and occipital spines, the latter in pairs or deeply bifid on each side in all but one individual in which it is simple. The dorsal formula is uniformly IX or X, 17, and the anal 14.

The ground color is pale, the head dotted with brown on sides and black dots on top. Large stellate brown pigment dots along back to posterior end of dorsal fin; few on body in front of pectoral; from backward about one-third of length of soft dorsal these dots extend downward and backward to a point about one-third of the length of anal from its anterior end, thence posteriorly the body is thus pigmented to a line from the posterior end of the second dorsal and the end of the anal.

The caudal peduncle and all the fins are pale; peritoneum showing dark brown or black, through the abdominal wall at line of junction of abdomen and body.

## 6. MYOXOCEPHALUS GRÆNLANDICUS (Cuvier and Valenciennes).

## GREENLAND SCULPIN.

One specimen  $9\frac{1}{2}$  inches long from 10 miles north of Nain, Labrador, August 20. The supraorbital and occipital spines have a short cirrus on the apex of each.

## 7. GYMNOCANTHUS TRICUSPIS (Reinhardt).

One specimen  $7\frac{3}{4}$  inches long from 10 miles northeast of Nain, August 20.

## 8. CYCLOPTERUS LUMPUS Linnæus.

## LUMPFISH.

One specimen, young, 14 mm. long from St. Pierre, October 1; 5 fathoms; rocks and gravel.

## 9. LIPARIS TRUNCATUS Reinhardt.

Three specimens 40, 43, and 70 mm. long, respectively, from Komactorvic Bay, north of Nakvak, Labrador, in 5 fathoms; rocky bottom; August 28.

## 10. LYCODES VAHLII Reinhardt.

One specimen presumably of the young of this species was taken "Half-way from Cape Mugford to Hebron in 60 fathoms; mud and sand bottom, August 23." Total length, 79 mm.; head in that length, 4.64; depth, 8.77; pectoral, 8.77?; eye, 4.25 in head; snout, 3.40; no scale evident.

## 11. LYCODES RETICULATUS Reinhardt.

One young specimen which seems to be of this species was taken from off Cape Harrison in 70 fathoms; "no bottom brought up;" August 13. Total length 65 mm.; head in that length 4.33; depth, 7.22; pectoral, 9.5; eye, 4.5 in head; snout, 4.5.

The coloration of this and the preceding specimen is very much the same, as appears to be the case with the young of most of the *Lycodes*, which makes them difficult of identification.

This specimen seems to be identical with the form called *Lycodes perspicillum* by Krøyer.

The writer has followed Smitt in Scandinavian fishes in considering it the young of *L. reticulatus*.

## 12. BOREOGADUS SAIDA (Lepechin).

One specimen doubtfully the young of this species, 18 mm. long, from 30 miles southeast of Nain, August 15.

13. *GADUS OGAC* Richardson.

One specimen about  $11\frac{3}{4}$  inches long from 10 miles northeast of Nain, August 20.

Head, 3.45; depth, 4.1; snout, 2.72; maxillary plus premaxillary, 2.11; interorbital much wider than eye; barbel nearly equals eye; pectoral, 2.1; D. i13-14-i15; A. i16-ii16. An oblique white spot near posterior base of first dorsal; peritoneum brownish-black.

14. *HIPPOGLOSSUS HIPPOGLOSSUS* Linnæus.

## HALIBUT.

A larval flatfish only a few millimeters long (5 or 6) from north of Hebron, September 1, seemed to be a halibut from the vertebral count, although this was uncertain; it was a large-mouthed form and could possibly have been some other species. The specimen was unfortunately lost before being definitely determined.